

Remarks

Reconsideration of the application as amended is respectfully requested.

Claims 1-120 are in the application. In view of a previous election, claims 1-31 are presently pending, with claims 32-120 having been withdrawn from consideration. Claims 1, 3-8, 10, 12-14, 20, 21, and 26-30 have been amended.

In the Official Action, the Examiner raised various issues under 35 U.S.C. §112, second paragraph. These issues are addressed in turn.

First, the Examiner asserted that "Claims 1-29 are vague and confusing." The Examiner specifically asserted that "[t]hese claims recite an apparatus for measuring cellular electrical conditions in their preamble but failed to recite any means, such as electrodes, to carry out the purported measurements of any electrical signals." In response, Applicants are unclear as to the basis of this rejection. Claim 1-29 are apparatus claims with the transition term "comprising", which allow for the inclusion of additional elements beyond that which is set forth in the claims. Applicants are allowed to have claims of differing scope, particularly when such claims were originally filed with the application. In other words, no means for carrying out measurements of electrical signals were set forth in claims 1-29 as originally filed. Accordingly, the fact that claims 1-29 were originally presented without means for measuring electrical signals indicates that Applicants did not, and continue not to, consider means for carrying out measurements of electrical signals to be essential matter for claiming purposes.

Second, the Examiner asserted that the phrase "adapted to" in claim 1 is allegedly vague and indefinite. In response, this phrase has been replaced with the phrase "for supporting".

Third, the Examiner asserted that the term "Cell Support Membrane" is allegedly vague and indefinite because the phrase resembles the format of a trademark. In response, the phrase has been amended to utilize all lower case letters.

Fourth, the Examiner asserted that the actual spatial relationship of the first and second layers in claim 1 is unclear. As set forth in claims 20 and 26, the second layer may be

alternatively positioned over or under the first layer. Reference is made to Applicants' specification at page 16, lines 11-19 for discussions of both arrangements.

Fifth, the Examiner asserted that claims 6 and 7 are allegedly vague and indefinite since "it is not clear as to how a dye can be a 'non-conductive' material". Claim 1 calls for the second layer to comprise a "non-conductive, sealant material". The layer itself is not described as being non-conductive. As such, claims 6 and 7 are consistent with claim 1: the second layer may comprise both a "non-conductive, sealant material" and a dye. In addition, the term "Solvent Blue 14" is not a trademark, contrary to the Examiner's assertion. Performing a quick search on the PTO database available on-line, thirty-five issued patents were uncovered which utilize the term "Solvent Blue 14", including two patents which use this term in its claims (U.S. Patent No. 5,661,197 which issued on August 26, 1997 to Villiger, et al, in claim 10; and U.S. Patent No. 6,342,094 which issued on January 29, 2002 to Kabalnov in claims 11 and 23). In view of the foregoing, it is respectfully submitted that the claims are all in accord with 35 U.S.C. §112.

The Examiner rejected claims 1 and 12-14 under 35 U.S.C. §102(b) as being anticipated by Carnow et al.

Carnow et al. is a publication which discusses the use of nitrocellulose paper in a process for analyzing cell ciliary ganglionic neurons. Nitrocellulose paper is inherently porous and there is no disclosure or suggestion in Carnow et al. to form perforations therein.

Amended claim 1 is directed to an apparatus for measuring cellular electrical conditions which comprises "a first layer comprising a non-conductive material comprising a top surface and bottom surface and including one or more pores each extending between, and through, said top and bottom surfaces". The nitrocellulose paper of Carnow et al. is not disclosed as having its pores each extend between, and through, its top and bottom surfaces. Further, there is no suggestion for forming such perforations in the nitrocellulose paper. It is respectfully submitted that claim 1, along with dependent claims 12-14, are patentable over Carnow et al.

The Examiner rejected claims 1-4, 8-9, 12-13 and 28-31 under 35 U.S.C. §102(e) as being anticipated by Baumann et al. (U.S. Patent Number 6,475,760). The Examiner appeared to rely on the embodiment of Figures 8 and 9 as the basis of this rejection.

Baumann et al. is directed to a method for intracellular manipulation of a biological cell which utilizes a support area 5. The support area 5 is formed of an electrical insulator 9 and a substrate 12. As shown in Figures 8 and 9, and discussed at column 11, lines 1-23, the support area 5 may have formed therein contour depressions 16 which are "closed annular grooves which are arranged concentrically". (column 11, lines 7-8). The concentrically arranged contour depressions 16 collectively form a surface for engaging a cell.

Amended claim 1 states that the pores formed in the first layer are "spaced apart such that only one pore may contact an individual cell". In this manner, one-to-one correspondence between a cell and a pore may be achieved for proper testing pursuant to Applicants' invention. The contour depressions 16 disclosed in Baumann et al. are formed to collectively define a surface for engaging a cell. There is no disclosure or suggestion in Baumann et al. to provide pores spaced apart to allow for one-to-one correspondence with cells. It is respectfully submitted that claim 1, along with dependent claims 2-4, 8-9, 12-13 and 28-31, are patentable over Baumann et al.

The Examiner rejected claims 15-18 and 19 under 35 U.S.C. §103(a) as being unpatentable over Baumann et al. in view of Owen et al. (WO 99/66329). The Examiner pointed out various deficiencies of Baumann et al. and relied on Owen et al. to overcome such.

Owen et al. is directed to a high throughput screen which utilizes a porous structure for conducting ion channel testing. The porous structure has open pores on which it is desired to provide one contiguous layer of cells. (See, e.g., pages 10, lines 5-8). As can be seen from the cover of Owen et al., a one-to-one correspondence between a pore and a cell may be achievable with the Owen et al. device.

As noted above, the contour depressions 16 in Baumann et al. located about a central pore are intended to collectively act as an engaging surface for a cell. There is no motivation to alter Baumann et al. to avoid such. Thus, any hypothetical combination of Baumann et al. and Owen et al. would provide a device having a group of concentric contour depressions about a central pore, contrary to the claimed structure of an achievable one-to-one correspondence of a pore to a cell. With claims 15-18 and 19 depending from claim 1, it is respectfully submitted that these claims are patentable over Baumann et al. and Owen et al., each taken alone or in combination.

The Examiner rejected claims 10-11 under 35 U.S.C. §103(a) as being unpatentable over Baumann et al. in view of Bossuyt et al. (U.S. Patent Number 6,585,969). The Examiner admitted that Baumann et al. fails to disclose using any materials which inhibit cell attachment and relied upon Bossuyt et al. to overcome such.

Bossuyt et al. is directed to the use of non-viable keratinocyte cell compositions or lysate for promoting wound healing. Various techniques relating to keratinocyte cell compositions and lysate are disclosed. The deficiencies of Baumann et al. noted above with respect to claim 1, however, are not overcome by Bossuyt et al. In particular, there is no disclosure of using a structure having pores formed therein or arranging pores in a substrate. It is respectfully submitted that claims 10 and 11, as depending from claim 1, are patentable over Baumann et al. and Bossuyt, each taken alone or in combination.

Conclusion

In view of the remarks made herein, Applicants respectfully submit that the claims are in condition for allowance and favorable action is, therefore, respectfully requested.

Please direct any questions concerning this Response or any aspect of this case to the undersigned attorney.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 19-3880 in the name of Bristol-Myers Squibb Company.

Respectfully submitted,

Bristol-Myers Squibb Company
Patent Department
P.O. Box 4000
Princeton, NJ 08543-4000
(609) 252-3218



Keith R. Lange
Attorney for Applicants
Reg. No. 44,201

Date: November 24, 2004